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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,186	11/13/2003	Gregory P. Muldowney	03034US	7894

7590

09/09/2004

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EXAMINER

NGUYEN, GEORGE BINH MINH

ART UNIT PAPER NUMBER

3723

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/712,186	Applicant(s) MULDOWNEY, GREGORY P.	
	Examiner George Nguyen	Art Unit 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,6,7 and 10 is/are rejected.
- 7) ☒ Claim(s) 2-5,8 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claims 1-10 are presented for examination.

This application has been filed with formal drawings which are approved by the examiner.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 8 recites the limitation "periodic pitch" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 6-7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima'6,159,088.

With reference to Figures 8 and 9, Nakajima'088 discloses the claimed invention including a plurality of mixing structures 220 or 230. Furthermore, Applicant admitted in the specification, page 2, 3rd paragraph, lines 10-15, that Nakajima groove

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configuration allows fresh slurry flowing in the first portions to "mix" with old slurry in the second portions. This inherently teaches that the groove configuration is to mix slurry in the groove.

FIG. 8

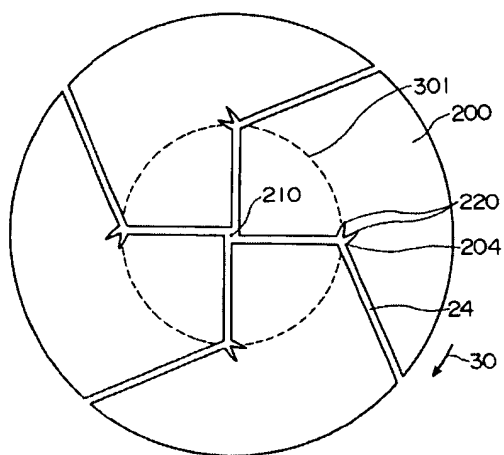


FIG. 8 shows a pattern of grooves formed in a polishing pad according to a fifth embodiment of the present invention. Here, the groove of the polishing pad shown in the second embodiment is provided at a projecting portion 204 with two extending portions 220 serving as ports for releasing the polishing slurry again in a directions opposite to the direction of rotation 30 of the polishing pad.

The polishing slurry delivered to the center portion 210 of the polishing pad will spread out toward the outer periphery of the polishing pad due to the centrifugal force of the rotation of the polishing pad, but if the polishing pad of the present embodiment is used, the polishing slurry trying to flow out of the polishing pad due to the centrifugal force is positively collected in this groove 24 and the accumulated polishing slurry is released again backward at several locations reliably from the extending portions 220 of the groove serving as the ports for releasing the polishing slurry newly provided at the groove portion 204 forming the largest projecting portion. With this pattern of grooves of the polishing pad, even though there is only one projecting portion, it becomes possible to deliver the polishing slurry to two or more positions just by adding the extending portions 220 and therefore improvement of the quality of the polishing of the polished wafer and effective utilization of the polishing slurry become possible.

The polishing pad of the present embodiment can be used while being mounted in the polishing apparatus shown in for example FIG. 1. Further, it is possible to polish a processed substrate by using this polishing apparatus.

Allowable Subject Matter

6. Claims 2-5 and 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Andideh et al.'6,093,651, Morgan et al.'6,110,832, Kim'6,165,904, Bennett et al.'6,273,806, Moore'6,354,930, Naujok'6,761,620, Burke et

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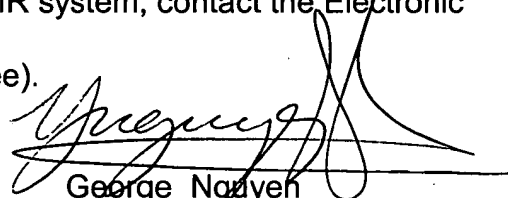
al.'5,645,469, and Park et al.'6,729,950 all disclose polishing pad with grooves to improve polishing rate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Nguyen whose telephone number is 703-308-0163. The examiner can normally be reached on Monday-Friday/630AM-300PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 703-308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

George Nguyen
Primary Examiner


George Nguyen
Primary Examiner
Art Unit 3723

GN – September 08, 2004